

WHAT IS CLAIMED IS:

1. A heat exchanger assembly comprising:
 - a shell;
 - a plurality of tubes;
 - 5 a shell side fluid inlet;
 - a shell side fluid outlet;
 - at least one tube side fluid inlet;
 - at least one tube side fluid outlet; and
 - at least one isolation and flow direction control plate positioned in
- 10 the shell of the heat exchanger assembly for creating adjacent smaller heat exchangers, each of said isolation and flow direction control plates including at least one fluid slot for permitting fluid communication between corresponding adjacent smaller heat exchangers.
- 15 2. The heat exchanger assembly according to claim 1, wherein each of said isolation and flow direction control plates is a rectangular shaped plate.
- 20 3. The heat exchanger assembly according to claim 2, wherein each of said fluid slots is a rectangular shaped fluid slot.
4. The heat exchanger assembly according to claim 1, wherein each of said fluid slots is a rectangular shaped fluid slot.
- 25 5. The heat exchanger assembly according to claim 1, wherein said tubes form at least one U-shaped tube bundle.
6. The heat exchanger assembly according to claim 1, said isolation and flow direction control plates having a pressure loss coefficient, said pressure loss coefficients contributing to an acceptable
- 30 pressure loss for each of said smaller heat exchangers.

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14. The method according to claim 8, further comprising:
calculating a plurality of acceptable pressure losses through each of
said smaller heat exchangers; and
sizing said isolation and flow direction control plates to permit fluid
5 flow within said acceptable pressure losses.

15. The method according to claim 8, wherein said shell side of
said heat exchanger assembly is arranged in a cross flow fluid flow.

- 10 16. An isolation and flow direction control plate for controlling
fluid flow on a shell side of a shell and tube heat exchanger comprising:
a base plate; and
at least one fluid slot for permitting a passage of a shell side fluid
flow through said isolation and flow direction control plate.

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